MICROGREEN PRODUCTION:

An Evaluation of Types of Growing Media

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What Are Microgreens?

Microgreens are edible vegetable, herb and flower plants that are harvested between 7 – 15 days after germination. Only the hypocotyl (stem), cotyledons (seed leaves) and up to two 'true leaves' are eaten.

Research Objective: Evaluate types of growing media used to cultivate arugula (Eruca sativa) microgreens to determine which media maximizes plant growth and minimizes water use.

Research Methods: Three separate, randomized replications were completed in a greenhouse setting. All three replications contained six different types of 5"x 5" squares of growing media, randomly placed on a growing tray. Seven grams of microgreen arugula seeds, from Johnny's Selected Seeds, were evenly dispersed on top of each type of media. Each type of growing media in all three replications received the same amount of water (measured in ml and distributed daily), sunlight and indoor environmental conditions. The arugula microgreens were harvested sixteen days after seeds were planted. The microgreens were measured by harvesting and weighing plant material from each type of media, to determine the quantity produced for each media in all three replications. The growing media performance and microgreen production results were compared.

Microgreen Growing Media Research Results: The germinating mix and the seed starter mix had the highest harvest weight totals and required the least amount of water, overall. The coconut coir mat required the most amount of water. The hydroponic grow mat produced the least amount of microgreens.

Conclusion:

Future research can include more media options, such as rockwool, perlite/vermiculite mix, coconut coir dust, sugarcane filter cake, and vermicompost.

Why Are Microgreens Important?

High Nutrient Content:

Studies have shown that microgreens have up to 40% higher nutrient concentrations than their mature counterparts.

Xiao, Z., Lester, G., Luo, Y., & Wang, Q. (2012). Assessment of vitamin and carotenoid concentrations of emerging food products: Edible microgreens. Journal of Agricultural and Food Chemistry, 60 (31), 7644-51.

Versatility of Growing Requirements:

Can be grown in about any location, using a variety of growing methods, and in small or large quantities.

Growing Media Studied:

Hemp Growing Mat
Coconut Coir Mat
Seed Starter Mix
Jute Growing Mat
Germinating Mix
Hydroponic Growing Mat